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## ABSTRACT

This study evaluated the relative merits of the more rigid Basic Studies Program and the more flexible General Education Program in the College of Education at Temple University in terms of the academic achievement of students and scores on the National Teacher Examinations (NTE). The sample consisted of 503 students in the Basic Studies Program and 306 students in the General Education Program. The NTE results were available for 240 students in the Basic Studies Program and 140 in the General Education Program. Data on the independent and dependent variables were obtained from student records. The General Education Program contained more students who were married, belonged to minority groups, scored lower on the Scholastic Aptitude Test scales, and had more transfer credit hours (and, therefore, took and passed fewer credit hours at the university). No difference in the cumulative grade point average of the two groups was observed at the university. Differences were observed on six of the scales of the NTE, with students in the Basic Studies Program obtaining higher scores. (Tables and course requirements for the two programs are included.) (RC)

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ACHIEVEMENT OF STUDENTS IN THE COLLEGE AND THE NATIONAL TEACHER EXAMINATION.

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INTRODUCTION

Changing conditions in society have contributed to several problems in the field of education. Technological and industrial developments causing mobility, urbanization and demand for higher education have resulted in the mushroom growth of higher educational institutions. As the population growth is leveling off, these educational institutions compete for students and survival. Program changes and policy changes as well as changes in requirements have been introduced to attract students and provide them with suitable education. Many of these changes are well conceived and based on sound theory, but seldom evaluated. Although several models, papers, or comments dealing with curriculum evaluation have been published recently (Provus, 1969; Stake, 1967; Stuffelbeam, 1969), few empirical studies have been conducted. In an eighty-item bibliographical list of publications on curriculum evaluation (Baker, 1969), only six empirical studies were presented. The few experimental studies carried out on curriculum structure have dealt with only the micro-level structures as the independent variable and with student achievement as the dependent variable (Posner, 1974). However, the macro-level structures as well as prerequisite courses and prescriptions for courses to be taken concurrently are also important.

The effect of specific courses and programs on the achievement of college

students have been investigated and discussed (Anderson, 1968; Arkoff, 1969; Roeder, 1973; Stordal, 1969; Welch, 1972). Faculty opposition to less structured educational programs encouraging independent study has been reported (Jerome, 1967) and traditional rigid programs for students have often been criticized (Mayhew, 1969). But charges toward a more flexible program are often sought for by the students and others (Ramsey, 1972).

In order to realize the objectives of undergraduate education, a large urban university introduced a program called the Basic Studies Program in September, 1964. The program was designed to provide all entering freshmen with two years of liberal arts curriculum that would serve as a foundation for the pursuit of a major field of study. It was also posited that the program would provide exploratory experience related to the possible career objectives to be selected at the end of the sophomore year. This program required that eight main course requirements (Appendix A) be satisfied.

The Basic Studies program continued till September 1971, at which time the College of Education introduced the General Education Program in place of the Basic Studies Program. This program provides further freedom to the student in selecting courses. The program is designed "to assist the individual primarily in his intellectual development, defined as man's ability to solve problems in all areas of human endeavor, and to provide the breadth of background required of the potential teacher." While Basic Studies Program required some sequence of courses for students, the General Education Program provides the students with the freedom to select courses from four different fields: Humanities, Social Sciences, Natural Sciences and Mathematics, and Human Performances. There should be a minimum of two courses

from any two areas in each of the four fields. (Appendix B). This change of program resulted in more flexibility in the courses and the sequence of courses the students could take as a basic requirement.

At the time of the introduction of the General Education Program, students already in the Basic Studies Program were given the option of following either the program in progress or the new program. Some of the students in the Basic Studies Program and some of the transfer students opted for the new program. Therefore, in the group of 888 students who graduated from the college of education in 1973, there were students who followed the Basic Studies Program and those who followed the General Education Program.

The present study attempts to evaluate the relative merits of the two programs in terms of the academic achievement of the students who were in the more rigid Basic Studies Program and in the more flexible General Education Program in the College of Education.

#### METHOD

##### Sample

The main sample for the study consisted of 809 students from the 888 students who graduated from the College of Education in 1973, for whom information about the curriculum for which they had opted was available. While 503 students in the group followed the Basic Studies Program, 306 students followed the General Education Program. Information on some variables selected for analyses was not available for some of the students. Therefore, the sample size for each of the analyses differed. The information from the National

Teacher Examination (NTE) results was available for 380 students - 240 in the Basic Studies Program and 140 in the General Education Program.

### Variables

The main independent variable considered for investigation was the program followed by the students - Basic Studies Program and General Education Program. The dependent variables for the investigation were the cumulative grade point average at the university and the NTE scores. Other independent variables considered were Scholastic Aptitude Test (SAT) - Verbal and Mathematics Scales; Cumulative hours passed at the university; Transfer credit hours; Full time/part time status; State resident status; Sex; Marital status; and Ethnic background.

### Procedure

Data on the independent <sup>and the</sup> ~~and~~ dependent variables were obtained from the student records. The samples of 809 students and 380 students were divided into two groups: (a) students under the Basic Studies Program and (b) students under the General Education Program. The two groups in the two samples were compared through analyses of variance on SAT scales, Cumulative grade point average, Cumulative hours passed at the university, and transfer credit hours. On the other independent variables, comparisons were made through chi-square contingency analyses. The two groups in the smaller sample were compared on the NTE scores through analyses of variance. In the final analyses, the SAT scores and the Transfer credit hours were considered as the covariates in comparing the two groups on the Cumulative grade point average and the NTE scores.

## RESULTS

The breakdown of the main sample and the sub-sample used for the NIE score analyses on Sex, Ethnic Background, Marital Status, Residence and Full-time/Part-time status are presented in table 1. Chi-square analysis of the frequencies of the different categories of these variables for the students under the two programs in the total sample indicated significant differences at the 5% level in Residence (Chi-square = 6.8710;  $df = 1$ ), Marital Status (Chi-square = 55.4232;  $df = 1$ ), and Ethnic Background (Chi-square = 15.5859;  $df = 1$ ). There were proportionately more State Residents, Married students, and students belonging to minority groups, under the General Education Program. Comparison of these two groups in the sub-sample for whom NIE scores were available on the variables indicated significant difference in Marital Status (Chi-square = 17.8712;  $df = 1$ ) and Ethnic Background (Chi-square = 7.5723;  $df = 1$ ). The trend of difference observed in the two samples was the same.

### Insert Table 1 About Here

The results of the comparison of the mean scores obtained by students in the two programs from the total sample and sample selected for the NIE score analyses are reported in table 2. The trend of significant differences observed between students under the two programs in the total sample and the sample used for the NIE analyses was similar. On the SAT scales students under the Basic Studies Program scored higher than those under the General Education Program. The former group had a lesser number of transfer credit hours than the latter, and therefore had passed more semester hours at the University.

Insert Table 2 About Here

Table 3 presents the mean and SD obtained by students under the two programs on the National Teacher Examination scales as well as the F-ratios calculated on comparing the groups. The results indicated that the students under the Basic Studies Program achieve significantly better than the students under the General Education Program on the Professional Education Test: Teaching Principles and Practices, the General Education Test: Mathematics, the General Education Test: Science and Mathematics, General Education Weighted Sub-total Score, Weighted Common Examination Total Score, and (marginally) Weighted Common Examination Total score and Area Examination Score.

Insert Table 3 About Here

The results of the analysis of covariance of NTE scores between groups under the Basic Studies Program and under the General Education Program with the SAT scores and the Transfer Credit Hours as covariates are presented in table 4. Though all the regression effects were statistically significant, none of the corrected group mean differences <sup>was</sup> ~~was~~ statistically significant.

Insert Table 4 About Here

#### DISCUSSION

Ideally, in the evaluation of program changes at the macro-level, students should be assigned to the traditional as well as the new program at random during the same period of time and allowed to pursue the course sequences according to the programs without any other restraints or requirements imposed through other sources. The two groups may be compared on some reliable

and valid criterion measures at the end of the programs. However, in the educational setting in a democracy, this ideal cannot be attained due to the length of the program, the voluntary nature of program selection by students and the inevitable presence of various forces working in the colleges making course selection process more restricted. The practical solution to the problem is to compare the two groups of students following the two programs under the existing conditions on several other variables related to the criterion variables. If the groups differ on the other variables, steps should be taken to control those variables in the analyses of the criterion variables.

There were more state residents in the General Education Program than in the Basic Studies Program. This could be due to the larger number of transfer students in the General Education Program and the fact that a larger proportion of the transfer students <sup>(113)</sup> ~~were~~ state residents. The General Education Program contained more students who were married, belonged to minority groups, scored lower on SAT scales, had more transfer credit hours and, therefore, take and pass fewer credit hours at the University. These factors could have caused achievement differences in the two groups of students, but no difference in the Cumulative Grade Point Average was observed at the University. On six of the scales (not independent) of the NIE, differences were observed, with the students in the Basic Studies Program obtaining higher scores. This difference in the achievement scores may be due to the difference in the ability levels of the groups as indicated by the SAT scores, or due to a different kind of education received by the students under the General Education Program. Since a large number of the

students under the General Education Program had transferred from other colleges, the difference in the kind of education they received may be at the original college or at the university under the new program. It is possible that a combination of these also may have caused the differences.

In order to control for differences in the ability level; the SAT scores; and to control the differences in Residence, Credit hours earned at the university and the Transfer Credit hours; the Transfer Credit hours were considered as the covariates in the final analyses. In these analyses the sample sizes were much smaller than the original samples selected. However, the results indicated no differences in the achievement of students under the Basic Studies Program and the General Education Program. If the results were evaluated without considering the differences in the backgrounds of the students in the two groups, it would appear that students under the Basic Studies Program did better on the NTE. But when analyses were controlled, there were no differences between the two groups.

In the present study, the larger samples used for grade point average comparison and the smaller samples used for NTE analyses, showed similar trends in the differences between the students under the Basic Studies Program and the General Education Program. Hence, there was no reason to believe in any sample bias due to the restriction of sample sizes. Also, the criterion measures selected for the study - the cumulative grade point average and the National Teacher Examination Scores - are not highly predictive of the ratings of the teachers on the job performances. The reason for this could be mainly due to the unreliability of the ratings (Quirk, et.al., 1973).

But these measures are intermediate goals set by the students and educators, and therefore, are considered valid criteria for the comparison of the students under the two programs.

It can be pointed out that some of the students under the General Education Program may have covered at least some of the requirements of the Basic Studies Program before they switched over the General Education Program. This is true with respect to the students who started their college education at the university. But it is also true that no one in the General Education Program had completed the Basic Studies Program requirements. At least some of the students who enrolled as freshmen since 1971 in the General Education Program may have completed the Basic Education requirements and many of them would have completed many of the requirements of the Basic Studies Program. The trend of the selection of courses under the new program were not completely different. The new students also selected many of the basic courses or similar courses as in the Basic Studies Program. Perhaps some of the students may have avoided some of the difficult courses, but other basic courses were as often selected as prior to the institution of the new program, since there was no radical difference in the course enrollments. Therefore, the results of the study are considered generalizable.

Another point to be considered is the machinery implementing the program changes and the influence of tradition in course selection. This university, in general, has been sponsoring a liberal arts program for the first two years before concentration in a major field. The students' course selection is facilitated by academic advisors who meet every student individually and discuss with the student the courses and sections in which he will enroll. Therefore,

even if there were a large amount of freedom for course selection, the students are likely to be influenced by the academic advisor, who may guide the student through a broad-based liberal arts curriculum. Also, the major departments have several prescribed courses which students majoring in the department must take. These courses may have some pre-requisites for successful completion. All these factors - invisible perhaps - guide the students through a curriculum that is not radically different from the traditional sequence of courses, even if some additional freedom for course selection is given. Consequently, there may not be any radical changes in the achievement of the students as indicated by their grades <sup>and</sup> ~~in~~ NIE scores. Even if there is some radical change in the course selection pattern, this may not be reflected in these indices. Perhaps, these differences in course selection patterns may show up on some other objectives of the curriculum.

In some evaluation studies in the field of education, no consideration for such independent variables correlated with the dependent variables is given (Astin, 1969; Knight, 1973; Stordal, 1969). In some other evaluations the samples are selected to control the differences on some variables thought to be influencing the dependent variable (Morgan, 1972; Welch, et.al., 1972), but seldom is the assumption tested that these variables affect the criterion variables. In many evaluations it is not practically possible to control all the other variables influencing the criterion variables as in an experiment. In such cases, it is essential to investigate and isolate some of the independent variables on which the treatment groups and the control group differ and among those that are correlated with the criterion variable selected for the study. In the final analysis, measures of these independent variables

should be treated as covariates.

Evaluation studies at the macro-level are more difficult mainly because of the uncontrollable factors and the unavailability of proper criterion measures and therefore, are scarce in literature. Some of the factors influencing the results of <sup>a</sup>micro-level educational reforms are tradition and the machinery implementing the reform. A program change making course selection pattern more flexible by itself may not bring about any significant change in the achievement of some of the intermediate objectives. Such a program change may be appealing to the students and may not be objectionable to a conservative educator. If radical changes in the field are expected, the programs should be changed entirely along with the machinery implementing it.

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Table 1

## Some Descriptive Information on the Samples

| S. No. | Variable                              | Total Sample    |                 |       | Sample for NTE Analysis |                 |       |
|--------|---------------------------------------|-----------------|-----------------|-------|-------------------------|-----------------|-------|
|        |                                       | B.S.<br>Program | G.E.<br>Program | Total | B.S.<br>Program         | G.E.<br>Program | Total |
| 1.     | Sex.                                  |                 |                 |       |                         |                 |       |
|        | a. Male                               | 140             | 84              | 224   | 41                      | 24              | 65    |
|        | b. Female                             | 363             | 222             | 585   | 199                     | 166             | 315   |
|        | c. No Information                     | 0               | 0               | 0     | 0                       | 0               | 0     |
| 2.     | Ethnic Background                     |                 |                 |       |                         |                 |       |
|        | a. American Indian                    | 1               | 0               | 1     | 1                       | 0               | 1     |
|        | b. Black American                     | 43              | 54              | 97    | 28                      | 33              | 61    |
|        | c. Oriental American                  | 2               | 0               | 2     | 1                       | 0               | 1     |
|        | d. Spanish Surname<br>American        | 2               | 6               | 8     | 0                       | 2               | 2     |
|        | e. White American                     | 393             | 188             | 581   | 193                     | 90              | 283   |
|        | f. Puerto Rican                       | 0               | 3               | 3     | 0                       | 1               | 1     |
|        | g. Other                              | 55              | 31              | 86    | 12                      | 8               | 20    |
|        | h. No Information                     | 7               | 24              | 31    | 5                       | 6               | 11    |
| 3.     | Marital Status                        |                 |                 |       |                         |                 |       |
|        | a. Single                             | 398             | 170             | 568   | 193                     | 83              | 281   |
|        | b. Married, widowed,<br>Divorced etc. | 88              | 125             | 213   | 41                      | 51              | 92    |
|        | c. No Information                     | 17              | 11              | 28    | 6                       | 1               | 7     |
| 4.     | Residence                             |                 |                 |       |                         |                 |       |
|        | a. State Resident                     | 440             | 289             | 729   | 226                     | 137             | 363   |
|        | b. Out of State<br>Resident           | 51              | 16              | 67    | 12                      | 3               | 15    |
|        | c. No Information                     | 12              | 1               | 13    | 2                       | 0               | 2     |
| 5.     | Full Time/Part Time Status            |                 |                 |       |                         |                 |       |
|        | a. Full Time                          | 364             | 232             | 596   | 200                     | 120             | 320   |
|        | b. Part Time                          | 116             | 70              | 186   | 38                      | 20              | 58    |
|        | c. No Information                     | 23              | 4               | 27    | 2                       | 0               | 2     |
| 6.     | Sample Size                           |                 |                 |       |                         |                 |       |
|        | Total                                 | 503             | 306             | 809   | 240                     | 140             | 360   |

Table 3

Results of the Comparison of the NTE Scores of Students Under the Basic Studies Program and the General Education Program

| S. No. | N.T.E. Sub Scale                                                    | Basic Studies Program |              | General Education Program |              | F-ratio   |
|--------|---------------------------------------------------------------------|-----------------------|--------------|---------------------------|--------------|-----------|
|        |                                                                     | N                     | Mean S.D.    | N                         | Mean S.D.    |           |
| 1.     | Professional Education Test: Psychological Foundations of Education | 226                   | 5.96 0.93    | 129                       | 5.92 1.00    | 0.187     |
| 2.     | Professional Education Test: Social Foundations of Education        | 226                   | 5.95 0.97    | 129                       | 5.85 1.06    | 0.928     |
| 3.     | Professional Education Test: Teaching Principles and Practices      | 226                   | 6.07 0.95    | 129                       | 5.82 1.10    | 5.000 *   |
| 4.     | General Education Test: Social Studies                              | 140                   | 5.99 0.98    | 95                        | 5.79 1.17    | 1.940     |
| 5.     | General Education Test: Literature and Arts                         | 140                   | 5.98 1.07    | 95                        | 5.92 1.18    | 0.179     |
| 6.     | General Education Test: Science                                     | 226                   | 5.79 0.96    | 129                       | 5.67 0.96    | 1.416     |
| 7.     | General Education Test: Mathematics                                 | 226                   | 6.12 0.89    | 129                       | 5.67 1.11    | 17.562 ** |
| 8.     | Teaching Area Examination Score                                     | 210                   | 622.57 68.13 | 128                       | 609.22 79.36 | 2.691     |
| 9.     | Professional Education Test Score                                   | 226                   | 59.40 9.74   | 129                       | 58.13 10.34  | 1.336     |
| 10.    | Professional Education: Weighted Sub-total Score                    | 223                   | 232.96 34.60 | 128                       | 227.27 39.70 | 1.972     |
| 11.    | General Education Test: Written English Expression                  | 223                   | 58.79 5.02   | 128                       | 56.87 10.63  | 3.248     |
| 12.    | General Education Test: Social Studies, Literature and Fine Arts    | 223                   | 59.61 9.588  | 128                       | 58.37 10.49  | 1.277     |

Table 3 (Cont'd)

Results of the Comparison of the NTE Scores of Students Under the Basic Studies Program and the General Education Program

| S. No. | N. T. E. Sub-Scales                                                 | Basic Studies Program |         |        | General Education Program |         |        | F-ratio  |
|--------|---------------------------------------------------------------------|-----------------------|---------|--------|---------------------------|---------|--------|----------|
|        |                                                                     | N                     | Mean    | S.D.   | N                         | Mean    | S.D.   |          |
| 13.    | General Education Test: Science and Mathematics                     | 223                   | 59.31   | 8.83   | 128                       | 56.42   | 9.81   | 8.039 ** |
| 14.    | General Education: Weighted Sub-Total Score                         | 223                   | 361.61  | 45.65  | 128                       | 349.45  | 54.61  | 4.989 *  |
| 15.    | Weighted Common Examination: Total Score                            | 223                   | 594.11  | 75.19  | 128                       | 576.41  | 88.58  | 3.950 *  |
| 16.    | Weighted Common Examination: Total Score and Area Examination Score | 210                   | 1221.54 | 143.58 | 128                       | 1186.31 | 161.85 | 3.822 1  |

1 Significant at 6% level  
 \* Significant at 5% level  
 \*\* Significant at 1% level

Table 2

Results of the Comparison of SAT Scores, Cumulative Grade Point Average, Credit Hours Passed at the University, and Transfer Credit Hours of Students Under the Basic Studies Program and the General Education Program From the Total Sample and the Sample Used for NTE Score Analysis.

| S. No. | Variable                                  | Total Sample    |                 |         | Sample for NTE Analysis |                 |         |
|--------|-------------------------------------------|-----------------|-----------------|---------|-------------------------|-----------------|---------|
|        |                                           | B.S.<br>Program | G.E.<br>Program | F-ratio | B.S.<br>Program         | G.E.<br>Program | F-ratio |
| 1.     | S.A.T. Verbal                             |                 |                 |         |                         |                 |         |
|        | a. Mean                                   | 484.41          | 463.90          | *       | 478.32                  | 451.22          | *       |
|        | b. S.D.                                   | 78.12           | 88.01           | 5.879   | 81.63                   | 80.80           | 5.116   |
|        | c. Sample Size                            | 333             | 126             |         |                         |                 |         |
| 2.     | S.A.T. Mathematics                        |                 |                 |         |                         |                 |         |
|        | a. Mean                                   | 492.85          | 466.43          | *       | 486.82                  | 452.12          | *       |
|        | b. S.D.                                   | 77.31           | 86.70           | 9.963   | 80.82                   | 84.41           | 8.341   |
|        | c. Sample Size                            | 333             | 126             |         | 161                     | 65              |         |
| 3.     | Cumulative Grade Point Average.           |                 |                 |         |                         |                 |         |
|        | a. Mean                                   | 3.06            | 3.11            |         | 3.12                    | 3.19            |         |
|        | b. S.D.                                   | 0.38            | 0.43            | 2.478   | 0.36                    | 0.38            | 2.962   |
|        | c. Sample Size                            | 503             | 306             |         | 240                     | 140             |         |
| 4.     | Cumulative Hours Passed at the University |                 |                 |         |                         |                 |         |
|        | a. Mean                                   | 111.23          | 85.41           | **      | 109.94                  | 89.73           | **      |
|        | b. S.D.                                   | 28.52           | 28.91           | 153.185 | 28.01                   | 26.92           | 47.186  |
|        | c. Sample Size                            | 503             | 306             |         | 240                     | 140             |         |
| 5.     | Transfer Credit Hours                     |                 |                 |         |                         |                 |         |
|        | a. Mean                                   | 19.95           | 42.98           | **      | 21.31                   | 40.29           | **      |
|        | b. S.D.                                   | 28.10           | 29.22           | 123.101 | 27.69                   | 26.81           | 42.319  |

\* Significant at 5% level

\*\* Significant at 1% level

Table #4

Results of the analysis of co-variance of N.T.E. scores between groups under the Basic Studies Program and under the General Education Program with SAT-Scores and Transfer hours as co-variables.

| DEPENDENT VARIABLE                                                     | Programs | Sample Size | Dependent Variable Scores |      | Co-Variables for the Analyses |            |                |       | F-Ratio |       |          |       |
|------------------------------------------------------------------------|----------|-------------|---------------------------|------|-------------------------------|------------|----------------|-------|---------|-------|----------|-------|
|                                                                        |          |             | Mean                      | S.D. | SAT-Verbal                    | SAT-Quant. | Transfer Hours |       |         |       |          |       |
| 1. Cumulative Grade Point Average                                      | Basic    | 160         | 3.14                      | 0.35 | 478.40                        | 81.89      | 486.36         | 80.34 | 16.52   | 25.31 | 15.591** | 0.138 |
|                                                                        | G.E.     | 63          | 3.23                      | 0.78 | 451.37                        | 82.05      | 455.05         | 83.96 | 39.99   | 28.14 |          |       |
| 2. Professional Education Test: Psychological Foundations of Education | Basic    | 151         | 6.05                      | 0.91 | 478.15                        | 83.22      | 487.45         | 81.36 | 16.20   | 25.24 | 39.393** | 0.222 |
|                                                                        | G.E.     | 57          | 5.93                      | 0.86 | 453.30                        | 82.56      | 456.53         | 82.49 | 40.12   | 28.84 |          |       |
| 3. Professional Education Test: Social Foundations of Education        | Basic    | 151         | 5.99                      | 0.93 | 478.15                        | 83.22      | 487.45         | 81.36 | 16.20   | 25.24 | 35.891** | 0.000 |
|                                                                        | G.E.     | 57          | 5.79                      | 0.88 | 453.30                        | 82.56      | 456.53         | 82.49 | 40.12   | 28.84 |          |       |
| 4. Professional Education Test: Teaching Principles and Practice       | Basic    | 151         | 6.12                      | 0.94 | 478.15                        | 83.22      | 487.45         | 81.36 | 16.20   | 25.24 | 37.621** | 0.260 |
|                                                                        | G.E.     | 57          | 5.84                      | 1.03 | 453.30                        | 82.56      | 456.53         | 82.49 | 40.12   | 28.84 |          |       |
| 5. General Education Test: Social Studies                              | Basic    | 87          | 6.14                      | 0.97 | 481.17                        | 79.89      | 490.71         | 77.97 | 17.70   | 26.40 | 29.792** | 2.403 |
|                                                                        | G.E.     | 43          | 5.55                      | 0.96 | 447.65                        | 81.98      | 447.86         | 81.42 | 39.88   | 29.14 |          |       |
| 6. General Education Test: Literature and Arts                         | Basic    | 87          | 6.16                      | 0.90 | 481.17                        | 79.89      | 490.71         | 77.97 | 17.70   | 26.40 | 26.623** | 0.879 |
|                                                                        | G.E.     | 43          | 5.79                      | 0.91 | 447.65                        | 81.98      | 447.86         | 81.42 | 39.88   | 29.14 |          |       |
| 7. General Education Test: Science                                     | Basic    | 151         | 5.85                      | 0.94 | 478.15                        | 83.22      | 487.45         | 81.36 | 16.20   | 25.24 | 18.085** | 0.214 |
|                                                                        | G.E.     | 57          | 5.78                      | 0.73 | 453.30                        | 82.56      | 456.53         | 82.49 | 40.12   | 28.84 |          |       |
| 8. General Education Test: Mathematics                                 | Basic    | 151         | 6.22                      | 0.86 | 478.15                        | 83.22      | 487.45         | 81.36 | 16.20   | 25.24 | 44.309** | 0.116 |
|                                                                        | G.E.     | 57          | 6.00                      | 0.76 | 453.30                        | 82.56      | 456.53         | 82.49 | 40.12   | 28.84 |          |       |

Table #4 (Cont'd.)

Results of the analysis of co-variance of N.T.E. scores between groups under the Basic Studies Program and under the General Education Program with SAT-Scores and Transfer hours as co-variables.

| DEPENDENT VARIABLE                                                     | Programs   | Sample Size | Dependent Variable Scores |        | Co-Variables for the Analyses |       |            |       |                |       | F-ratio  |            |
|------------------------------------------------------------------------|------------|-------------|---------------------------|--------|-------------------------------|-------|------------|-------|----------------|-------|----------|------------|
|                                                                        |            |             | Mean                      | S.D.   | SAT-Verbal                    |       | SAT-Quant. |       | Transfer Hours |       |          |            |
|                                                                        |            |             |                           |        | Mean                          | S.D.  | Mean       | S.D.  | Mean           | S.D.  |          | Regression |
| 9. Teaching Area Examination Score                                     | Basic G.E. | 142         | 629.65                    | 66.03  | 478.34                        | 84.27 | 482.00     | 82.93 | 15.99          | 25.02 | 45.383** | 0.450      |
|                                                                        |            | 56          | 614.11                    | 76.13  | 451.77                        | 82.45 | 454.14     | 85.08 | 38.49          | 28.67 |          |            |
| 10. Professional Education Test Score                                  | Basic G.E. | 151         | 59.95                     | 9.89   | 478.15                        | 83.22 | 487.45     | 81.36 | 16.20          | 25.24 | 59.999** | 0.000      |
|                                                                        |            | 57          | 58.21                     | 8.97   | 453.30                        | 82.56 | 456.53     | 82.49 | 40.12          | 28.84 |          |            |
| 11. Professional Education Weighted Sub-total Score                    | Basic G.E. | 148         | 235.76                    | 33.28  | 477.89                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 66.726** | 0.053      |
|                                                                        |            | 56          | 228.23                    | 33.13  | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 12. General Education Test Written English Expression                  | Basic G.E. | 148         | 59.47                     | 9.37   | 477.63                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 47.830** | 0.000      |
|                                                                        |            | 56          | 57.18                     | 10.14  | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 13. General Education Test: Social Studies, Literature and Fine Arts   | Basic G.E. | 148         | 60.45                     | 8.72   | 477.89                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 46.151** | 0.025      |
|                                                                        |            | 56          | 52.14                     | 8.72   | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 14. Science and Mathematics                                            | Basic G.E. | 148         | 60.32                     | 8.28   | 477.89                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 42.665** | 0.378      |
|                                                                        |            | 56          | 57.39                     | 6.77   | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 15. General Education Weighted Sub-total Score                         | Basic G.E. | 148         | 366.77                    | 42.17  | 477.89                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 86.192** | 0.128      |
|                                                                        |            | 56          | 351.77                    | 39.52  | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 16. Weighted Common Examination total score                            | Basic G.E. | 148         | 601.83                    | 70.55  | 477.89                        | 82.53 | 488.30     | 81.11 | 16.32          | 25.39 | 97.933** | 0.079      |
|                                                                        |            | 56          | 580.00                    | 67.31  | 455.30                        | 81.90 | 457.57     | 82.86 | 39.73          | 28.95 |          |            |
| 17. Weighted Common Examination total score and Area Examination Score | Basic G.E. | 130         | 1236.65                   | 139.20 | 477.75                        | 85.19 | 488.18     | 83.43 | 15.71          | 25.09 | 57.369** | 0.276      |
|                                                                        |            | 49          | 1197.10                   | 132.70 | 456.33                        | 82.30 | 456.90     | 84.02 | 37.98          | 29.62 |          |            |

## APPENDIX A

### COURSE REQUIREMENTS FOR THE BASIC STUDIES PROGRAM

#### Requirement 1

Courses in English Composition (Eng. 1, and 2 or 4)

#### Requirement 2

Two courses in History including at least one from 'a'.

- a. Western Civilization in three periods for three courses—Early, Middle and Modern. (Hist. 1, 2, 3)
- b. History of other countries such as East Asian Civilization. (Hist. 11, 13, 14, 15, 17, 18, or 21)

#### Requirement 3

One of the following:

- a. Two courses in introduction to Mathematics (Math. 1-2).  
Two courses in concepts in modern Mathematics (Math. 3-4) or  
Two courses in foundations of elementary Mathematics (Math. 5-6)..
- b. Two courses in Analytic Geometry and Calculus (Math. 21-22)  
Two courses in Calculus and Introduction to Modern Analysis (Math. 31-32).

#### Requirement 4

One of the following:

- a. Two courses in general Biology (Biol. 1-2).
- b. Two courses in introduction to Chemistry (Chem. 9-10).
- c. Two courses in general Chemistry (Chem. 41-42, 51-52 or 55-56).
- d. Two courses in general Geology (Geology 1-2 or 51-52)
- e. Two courses in introduction to Physical Science (Physics 1-2). or  
introduction to general Physics (Physics 31-32) or general  
physics (Physics 41-42 or 51-52).

#### Requirement 5

Two of the following:

- a. Introduction to Cultural Anthropology (Anthr. 1).
- b. Introduction to Archaeology (Anthr. 3).
- c. Introduction to Physical Anthropology (Anthr. 5).
- d. Language and Culture (Anthr. 7).
- e. Principles of Economics (Econ. 1).
- f. Principles of Economics (Econ. 2).
- g. Introduction of Geography (Geog. 1).
- h. American Government (Pol. Sc. 1) or Introductory seminar in  
American Government (Pol. Sc. 5).
- i. Comparative Politics (Pol. Sc. 2) or Introductory seminar in  
Comparative Government (Pol. Sc. 6).
- j. Introduction to Sociology (Sociol. 1).
- k. American Society (Sociol. 11).
- l. Urban social development (Soc. Sc. 24).
- m. Youth participation in the city (Soc. Sc. 26).
- n. Community problems in intergroup relations (Soc. Sc. 41).
- o. Community problems in intergroup relations (Soc. Sc. 42).
- p. Urban society (Urban Studies 50).

APPENDIX A (Cont'd)

Requirement 6

Five of the following:

- a. Courses from humanities and literature of English (Eng. 5, 7, 11, 26, 27, or 28, 31, 33) or a semester course in foreign literature on the advanced level.
- b. The second half of the courses in 6a (Eng. 6, 8, 12, 26, 27, or 28, 32, 34) or a semester course in foreign literature on the advanced level.
- c. One other Social Science course selected from requirement 5 with some restrictions.
- d. Course in Philosophic Problems (Phil. 1, 2, 3 or 4) or course in Religion at the lower level (Rel. 1, 3, or 7).
- e. One of the following courses:  
Humanities 7, Art History 3, Art History 4, Music 60, Theater 5.
- f. Introduction to Human Behavior (Psych. 121).

Requirement 7

Either 'a' or 'b' of the following:

- a. A second Natural Science course selected from those listed in requirement 4.
- b. Three of the following:
  - (1) A course in Public Speaking (Speech 15 or 16)
  - (2) Requirement 6a and 6b.
  - (3) A semester course in foreign language above the 10 level.
  - (4) A second course in a foreign language above the 10 level.
  - (5) Second half of the course requirement 3b (Math. 22 or 32)
  - (6) United States History- From the colonial era through 1877 (Hist. 51).
  - (7) United States History - From reconstruction to the present (Hist. 52).
  - (8) Themes in American History (Hist. 53).
  - (9) Another Social Science selected from requirement 5b with some restrictions.
  - (10) Requirement as in 5e.

Requirement 8.

Four one-semester course in Health, Physical Education and Recreation or Military Science or a combination of these. This requirement may also be met in whole or part by satisfactory active military service when recommended by the Professor of Military Science and approved by the Associate Dean of Basic Studies.

A student should plan to complete requirement ONE, TWO, AND THREE during the first year, and requirement Four by the end of the sophomore year. It is desirable that all Basic Studies requirement be fulfilled by the end of the second year.

## APPENDIX B

### COURSE REQUIREMENT FOR THE GENERAL EDUCATION PROGRAM

A minimum of 48 semester hours is required with the following distribution:

|                                  |                             |
|----------------------------------|-----------------------------|
| Humanities                       | Two courses from two areas. |
| Social Sciences                  | Two courses from two areas. |
| Natural sciences and Mathematics | Two courses from two areas. |
| Human Performances               | Two courses from two areas. |

Two courses with a minimum of six semester hours are requirements for each of the four divisions. Each student must then select additional courses from any offered for credit by the University to equal the required 48 semester hours.